UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,504	10/06/2005	Gregory Lee Durst	X16067	4430

25885 7590 08/16/2007

ELI LILLY & COMPANY
PATENT DIVISION
P.O. BOX 6288
INDIANAPOLIS, IN 46206-6288

EXAMINER	
MABRY, JOHN	
ART UNIT	**PAPER NUMBER**
1609	

NOTIFICATION DATE	DELIVERY MODE
08/16/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@lilly.com

Office Action Summary	Application No.	Applicant(s)	
	10/552,504	DURST ET AL.	
	Examiner	Art Unit	
	John Mabry	1609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-38,41-43 and 45-47* is/are pending in the application.

4a) Of the above claim(s) *7-10,31-37,41,46 and 47* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-6,11-30,38,42,43 and 45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/06/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

I. Claims 1,3-6, 11-30, 38 and 45 drawn to compounds of Formula I (cyclopentane-fused benzopyrans), where G = C and pharmaceutical compositions.

II. Claims 1,3, 7, 38 and 45 drawn to compounds of Formula I (furan-fused benzopyrans), where G = O and pharmaceutical compositions.

III. Claims 1, 3, 8 - 10, 38 and 45 drawn to compounds of Formula I (thiophene-fused benzopyrans), where G = S and pharmaceutical compositions.

IV. Claims 31-37, 46 and 47 drawn to compounds of Formula II (cyclohexane-fused benzopyrans), where G and G' = C and pharmaceutical compositions.

V. Claim(s) 41, drawn to a method of treating prostate cancer in a patient according to compounds of formula I wherein G = C.

VI. Claim(s) 41, drawn to a method of treating prostate cancer in a patient according to compounds of formula I wherein G = O.

VII. Claim(s) 41, drawn to a method of treating prostate cancer in a patient according to compounds of formula I wherein G = S.

VIII. Claim(s) 41, drawn to a method of treating prostate cancer in a patient according to compounds of formula II wherein G and G' = C.

IX. Claims 42 and 43, drawn to a method of treating benign prostatic hyperplasia (BPH) in a patient according to compounds of formula I wherein G = C.

X. Claims 42 and 43, drawn to a method of treating benign prostatic hyperplasia (BPH) in a patient according to compounds of formula I wherein G = O.

XI. Claims 42 and 43, drawn to a method of treating benign prostatic hyperplasia (BPH) in a patient according to compounds of formula I wherein G = S.

XII. Claims 42 and 43, drawn to a method of treating benign prostatic hyperplasia (BPH) in a patient according to compounds of formula II wherein G and G' = C.

The claims herein lack unity of invention under PCT rule 13.1 and 13.2 since, under 37 CFR 1.475(a) Group I -Group XII lack unity of invention since under 37 CFR 1.475:

> Where a group of inventions is claimed in an application, the requirement of unity of invention shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features...those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.

The technical feature corresponding to group I, formula I, is the substituted cyclopentane-fused benzopyran scaffold. Group II contains furan-fused benzopyrans of formula (I). Group III contains thiophene-fused benzopyrans of formula (I) as the special technical feature. The technical feature corresponding to group (IV), formula (II), is the substituted cyclohexane-fused benzopyrans scaffold. These bicyclic ring systems are not considered equivalent.

The technical feature corresponding to group V, a method of treating prostate cancer in a patient according to compounds of formula I wherein G = C. Group VI is a method of treating prostate cancer in a patient according to compounds of formula I wherein G = O. Group VII a method of treating prostate cancer in a patient according to

compounds of formula I wherein G = S as the special technical feature. The technical feature of Group VIII corresponding to a method of treating prostate cancer in a patient according to compounds of formula II wherein G and G' = C.

The technical feature corresponding to group IX, a method of treating benign prostatic hyperplasia (BPH) in a patient according to compounds of formula I wherein G = C. Group X is a method of treating benign prostatic hyperplasia (BPH) in a patient according to compounds of formula I wherein G = O. Group XI a method of treating benign prostatic hyperplasia (BPH) in a patient according to compounds of formula I wherein G = S as the special technical feature. The technical feature of Group XII corresponding to a method of treating benign prostatic hyperplasia (BPH) in a patient according to compounds of formula II wherein G and G' = C.

Therefore the above claims, are not so linked as to form a single general inventive concept and there is a lack of unity of invention because they lack a common core structure and the technical features present fail to define a contribution over the prior art. Accordingly, unity of invention is considered to be lacking and restriction of the invention in accordance with the rules of unity of invention is considered to be proper.

Therefore, since the claims do not relate to a single general inventive concept under PCT Rule 13.1 and lack the same or corresponding special technical features, the claims lack unity of invention and should be limited to only one invention.

Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above

and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

(a) the inventions have acquired a separate status in the art in view of their different classification;

(b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

(c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Election

During a telephone conversation with John Demeter on August 6, 2007, a provisional election was made with traverse to prosecute the invention of Group I, claims 1, 3-6, 11-30, 38 and 45 and Group IX, claims 42 and 43. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7-10, 31-37, 41, 46 and 47 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Rejoinder Advisory

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder**. Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

This application contains claims drawn to an invention nonelected with traverse. A complete reply to the Office Action must include **cancellation of nonelected claims** or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Objections

The disclosure is objected to because of the following informalities: In claim 1, formula I, the bond to the phenyl ring to oxygen is an arrow. This should be a single bond. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 4-6, 11-30,42, and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "$CH(OH)C_1$-C_6alkyl" in claim 1 is a relative term which renders the claim indefinite. The term " $CH(OH)C_1$-C_6alkyl " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one

of ordinary skill in the art would not be reasonably apprised of the scope of the invention. According to this substituent pertaining to formula I, the Examiner interprets the ring carbon to be pentavalent. What type of bonding does Applicant intend by this substituent?

The substituent bonded to the five-membered ring in claim 17 renders the claim indefinite. The substituent bonded to the five-membered ring is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Does this bond represent an undefined configuration? Is this an ethyl group substituted to the cyclopentane ring? For examination purposes, the Examiner will interpret the bonding as being undefined with an ethyl group attached to cyclopentane ring.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 42 and 43 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Such a utility cannot be deemed enabled. .

Pursuant to *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988), one considers the following factors to determine whether undue experimentation is required: (A) The breadth of the claims; (B) The nature of the invention; (C) The state of the prior art; (D) The level of one of ordinary skill; (E) The level of predictability in the art; (F) The amount of direction provided by the inventor; (G) The existence of working examples; and (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure. Some experimentation is not fatal; the issue is whether the amount of experimentation is "undue"; see *In re Vaeck*, 20 USPQ2d 1438, 1444.

The analysis is as follows:

(1) Breadth of claims:

(a) Scope of the compounds. Owing to the range of primary variables, thousands of cyclopentane-fused benzofurans compounds are embraced.

(b) Scope of the diseases covered. A method of treating benign prostatic hyperplasia (BHP).

(2) The nature of the invention and predictability in the art: The invention is directed toward medicine and is therefore physiological in nature. It is well established that "the scope of enablement varies inversely with the degree of unpredictability of the factors

involved," and physiological activity is generally considered to be an unpredictable factor. See *In re Fisher*, 427 F.2d 833, 839, 166 USPQ 18, 24 (CCPA 1970).

(3) Direction or Guidance: That provided is very limited. The dosage range information is expected to vary from about 0.001 milligrams per kilogram of body weight per day (mg/kg/day) on page 108, lines 15-18 of the Specification. Moreover, this is generic, the same for the many disorders covered by the specification. Thus, there is no specific direction or guidance regarding a regimen or dosage effective specifically for the disease mentioned in Scope.

(4) State of the Prior Art: These compounds are substituted cyclopentane-fused benzopyrans. So far as the examiner is aware, no substituted cyclopentane-fused benzopyrans of any kind have been used for the treatment of the disease mentioned in the Scope.

(5) Working Examples: Applicant shows an ER Binding Assay study with the working examples but no working examples were shown for treating benign prostatic hyperplasia (BHP).

(6) Skill of those in the art: The current treatments or maybe no treatment for the treating benign prostatic hyperplasia (BPH) is surgery, while chemotherapeutics provide only symptomatic relief. In 1996, the discovery of estrogen receptor beta (ERß) initiated

intense interest in the scientific community; never-the-less, research into the function of this receptor remains unclear (see page 424, abstract - Endocrinology, October 2003, 144(10):4241-4249).

(7) The quantity of experimentation needed: The amount of experimentation is expected to be high and unpredictable.

MPEP 2164.01(a) states, "A conclusion of lack of enablement means that, based on the evidence regarding each of the above factors, the specification, at the time the application was filed, would not have taught one skilled in the art how to make and/or use the full scope of the claimed invention without undue experimentation. *In re Wright*, 999 F.2d 1557,1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993)." That conclusion is clearly justified here.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 4, 5, 17, 38, 42, 43 and 45 are rejected under 35 U.S.C. 103(a) as being obvious over Dodge et al (WO/2003/044006, US equivalent 7,217,734 B2).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Claims 1, 3, 4, 5, 17, 38, 42, 43 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dodge et al (WO/2003/044006, US equivalent 7,217,734 B2).

The instant Application claims compounds of formula I wherein G = $CHCH_3$.

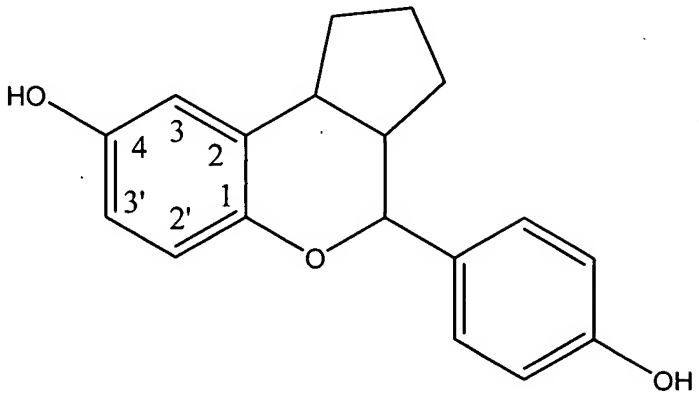
Dodge et al discloses compounds of formula I, wherein G = CH_2 (see compounds of page 68, Example 1 and page 69, Example 1A).

Dodge et al differs from the instant claims in the substituent at the G position. A CH_3 group is considered a homolog of an H group.

The MPEP 2144.09 which states: Compounds which are homologs (compounds differing regularly by the successive addition of the same chemical group, e.g., by -CH2- groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977). Thus, said claims are rendered obvious by Dodge et al.

The instant Application claims compounds of formula I wherein G = $CHCH_3$ and the –OH group is at the 4-position on the benzopyrane core.

Dodge et al discloses compounds of formula I, wherein G = CH_2 and the –OH group is at the 3-position (see page 72, compound Example 5). Dodge et al also discloses compound of formula I, wherein G = CH_2 and the –OH group is at the 3'-position (see page 73, compound Example 6).



Dodge et al differs from the instant claims in a) the substituent at the G position, a CH_3 group is considered a homolog of a H group and b) the location of the substitution on the benzopyrane core.

a) The same homolog argument applies, as stated above.

(b) Dodge et al differs from instant claims in the substituents at the 3- and 3'-positions on the benzopyrane core.

There is little difference between the hydroxy substituent being at the 3- and –3'-position as compared at the 4-position on the claimed structure of formula I. It is well established that position isomers are prim facie structurally obvious even in the absence of a teaching to modify. The isomer is expected to be prepared by the same method and to have generally the same properties. This expectation is then deemed the motivation for preparing the position isomers. This circumstance has arisen many times. See: *Ex parte Englehardt,* 208 USPQ 343, 349; *In re Mehta,* 146 USPQ 284, 287; *In re Surrey*, 138 USPQ 67; *Ex Parte Ullyot,* 103 USPQ 185; *In re Norris,* 84 USPQ 459; *Ex. Parte Naito,* 168 USPQ 437, 439; *Ex parte Allais,* 152 USPQ 66; *In re Wilder,* 166 USPQ 545, 548; *Ex parte Henkel,* 130 USPQ 474; *Ex parte Biel,* 124 USPQ 109; *In re Petrzilka,* 165 USPQ 327; *In re Crownse,* 150 USPQ 554; *In re Fouche,* 169 USPQ

431; *Ex parte Ruddy,* 121 USPQ 427; *In re Wiechert,* 152 USPQ 249, *In re Shetty,* 195 USPQ 753; *In re Jones,* 74 USPQ 152, 154. There may be others as well. Thus, said claims are rendered obvious by Dodge et al.

For example, "Position isomerism has been used as a tool to obtain new and useful drugs" (*Englehardt*) and "Position isomerism is fact of close structural similarity" (*Mehta*, emphasis in the original). Note also *In re Jones,* 21 USPQ2d 1942, which states at 1943 "Particular types or categories of structural similarity without more, have, in past cases, given rise to prima facie obviousness"; one of those listed is "adjacent homologues and structural isomers". Position isomers are the basic form of close "structural isomers." Similar is *In re Schechter and LaForge,* 98 USPQ 144, 150, which states "a novel useful chemical compound which is homologous or isomeric with compounds of the prior art is unpatentable unless it possesses some unobvious or unexpected beneficial property not possessed by the prior art compounds." Note also *In re Deuel* 34 USPQ2d 1210, 1214 which states, "Structural relationships may provide the requisite motivation or suggestion to modify known compounds to obtain new compounds…a known compound may suggest it analog or isomers, either geometric (cis v. trans) or position isomers (e.g. ortho v. para)." See also MPEP 2144.09, second paragraph. Further, the reference provides for the ring being substituted in any position.

Dodge et al discloses compounds of formula I, wherein G = CH_2 and the $-CH_3$ group is at the 2'-position (see page 74, compound Example 7) also.

Furthermore, Dodge et al teaches the equivalency of C_1-C_6 alkyl, C_1-C_6 alkoxy, -OH, halo, amido and $-CF_3$ at the R1-R4 position on the benzopyrane core (see page 3, formulas I and II). Thus, Dodge et al renders said claims obvious.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,630,508 B1 by Dodge et al discloses species of formula I as described in above rejection.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 3, 4, 5, 17, 38, 42, 43 and 45 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15, 17-22, 24-28, 31, 35, 37-39 and 43-51 of U.S. Patent No. 7,217,734 B2.

The instant Application claims compounds of formula I wherein G = $CHCH_3$.

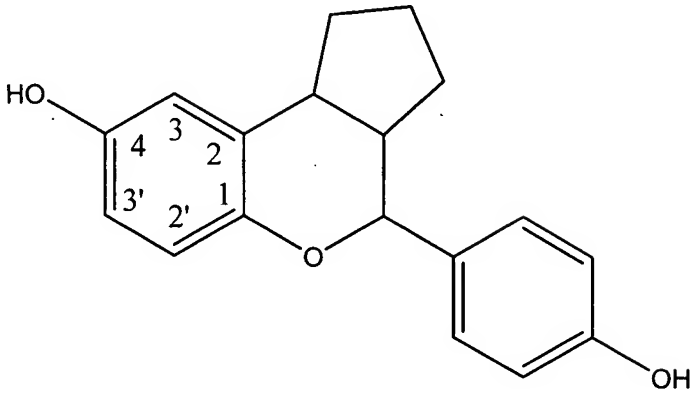
Dodge et al discloses compounds of formula I, wherein G = CH_2 (see compounds of column 53, Example 1 and column 54, Example 1A).

Dodge et al differs from the instant claims in the substituent at the G position. A CH_3 group is considered a homolog of an H group.

The MPEP 2144.09 which states: Compounds which are homologs (compounds differing regularly by the successive addition of the same chemical group, e.g., by -CH2-groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977). Thus, an obviousness-type double patenting exists.

The instant Application claims compounds of formula I wherein G = $CHCH_3$ and the –OH group is at the 4-position on the benzopyrane core.

Dodge et al discloses compounds of formula I, wherein G = CH_2 and the –OH group is at the 3-position (see column 56, compound Example 5). Dodge et al also discloses compound of formula I, wherein G = CH_2 and the –OH group is at the 3'-position (see compound Example 6, column 56, line 55).



Dodge et al differs from the instant claims in a) the substituent at the G position, a CH_3 group is considered a homolog of a H group and b) the location of the substitution on the benzopyrane core.

a) The same homolog argument applies, as stated above.

(b) Dodge et al differs from instant claims in the substituents at the 3- and 3'-positions on the benzopyrane core.

There is little difference between the hydroxy substituent being at the 3- and –3'-position as compared at the 4-position on the claimed structure of formula I. It is well established that position isomers are prim facie structurally obvious even in the absence of a teaching to modify. The isomer is expected to be prepared by the same method and to have generally the same properties. This expectation is then deemed the motivation for preparing the position isomers. This circumstance has arisen many times. See: *Ex parte Englehardt,* 208 USPQ 343, 349; *In re Mehta,* 146 USPQ 284, 287; *In re Surrey*, 138 USPQ 67; *Ex Parte Ullyot,* 103 USPQ 185; *In re Norris,* 84 USPQ 459; *Ex. Parte Naito,* 168 USPQ 437, 439; *Ex parte Allais,* 152 USPQ 66; *In re Wilder,* 166 USPQ 545, 548; *Ex parte Henkel,* 130 USPQ 474; *Ex parte Biel,* 124 USPQ 109; *In re Petrzilka,* 165 USPQ 327; *In re Crownse,* 150 USPQ 554; *In re Fouche,* 169 USPQ

431; *Ex parte Ruddy,* 121 USPQ 427; *In re Wiechert,* 152 USPQ 249, *In re Shetty,* 195 USPQ 753; *In re Jones,* 74 USPQ 152, 154. There may be others as well. Thus, an obviousness-type double patenting exists.

For example, "Position isomerism has been used as a tool to obtain new and useful drugs" (*Englehardt*) and "Position isomerism is fact of close structural similarity" (*Mehta*, emphasis in the original). Note also *In re Jones,* 21 USPQ2d 1942, which states at 1943 "Particular types or categories of structural similarity without more, have, in past cases, given rise to prima facie obviousness"; one of those listed is "adjacent homologues and structural isomers". Position isomers are the basic form of close "structural isomers." Similar is *In re Schechter and LaForge,* 98 USPQ 144, 150, which states "a novel useful chemical compound which is homologous or isomeric with compounds of the prior art is unpatentable unless it possesses some unobvious or unexpected beneficial property not possessed by the prior art compounds." Note also *In re Deuel* 34 USPQ2d 1210, 1214 which states, "Structural relationships may provide the requisite motivation or suggestion to modify known compounds to obtain new compounds...a known compound may suggest it analog or isomers, either geometric (cis v. trans) or position isomers (e.g. ortho v. para)." See also MPEP 2144.09, second paragraph. Further, the reference provides for the ring being substituted in any position.

Dodge et al discloses compounds of formula I, wherein G = CH_2 and the $-CH_3$ group is at the 2'-position (see column 57, compound Example 7) also.

Furthermore, Dodge et al teaches the equivalency of C_1-C_6 alkyl, C_1-C_6 alkoxy, -OH, halo, amido and $-CF_3$ at the R1-R4 position on the benzopyrane core (see columns 2 and 3, formulas I and II. Thus, an obviousness-type double patenting exists.

Conclusion

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Mabry whose telephone number is (571) 270-1967. The examiner can normally be reached on M-F from 9am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Stucker, can be reached on (571) 272-0911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

jm
JM

MICHAEL MELLER
PRIMARY EXAMINER